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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/677,976	10/02/2003	Michael Ellenbogen	25960.009	9062

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EXAMINER
YUN, JURIE

ART UNIT	PAPER NUMBER
2882	

DATE MAILED: 09/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	**Application No.** 10/677,976	**Applicant(s)** ELLENBOGEN ET AL.	
	Examiner Jurie Yun	**Art Unit** 2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6,8-13 and 17-31* is/are rejected.

7)☒ Claim(s) *5,7 and 14-16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 February 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claim 20 is objected to because of the following informalities: it appears that claim 20 should depend on claim 18 and has been treated as such. Appropriate correction is required.

3. Claim 29 is objected to because of the following informalities: it appears that claim 29 should depend on claim 28 and has been treated as such. Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 30 and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Cable (USPN 4,599,740).

6. With respect to claim 30, Cable discloses a method for processing checked bags at an airport comprising the steps of: at a plurality of locations (Fig. 1, 11 &12) in the airport performing the steps of: scanning bags and reconstructing at least one image of a portion of each bag; detecting a potential threat based upon reconstructed images; distributing bags to airplanes if a potential threat is not detected; and transferring the at least one image to a review location if a potential threat is detected; and at the review location, performing the steps of: displaying the transferred at least one image for review by an operator (column 6, lines 3+).

7. With respect to claim 31, Cable discloses at the review location performing the steps of: receiving in indication from the operator of a threat or not a threat based upon the displayed image; and transmitting the indication to the location which provided the image; and at the plurality of locations performing the steps of: receiving the indication from the review location; distributing a bag to an airplane based upon an indication of not a threat; and preventing distribution of the bag to an airplane upon indication of a threat (column 6, lines 3+).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1-4 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over DiBianca (USPN 6,335,957 B1) in view of Fenkart et al. (USPN 6,647,091 B2).

10. With respect to claim 1, DiBianca discloses a CT scanner (Fig. 6) for scanning of an object (11) comprising: a gantry (60) rotatable around an object; an x-ray source (10) on the gantry for providing an x-ray beam; a first plurality of detectors (Fig. 9, 27) on the gantry positioned a first distance from the x-ray source; and a second plurality of detectors (12) on the gantry positioned a second distance from the x-ray source, wherein the second distance is less than the first distance. DiBianca discloses all of the elements except for a tunnel and a conveyor for moving the object through the tunnel. Fenkart et al. disclose a tunnel (Fig. 1, 12/14/16) and a conveyor (18) for moving the object through the tunnel. The invention is a nonintrusive inspection apparatus and includes a gantry section (34) for CT imaging. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a tunnel and conveyor in the DiBianca apparatus, to have a means for moving the inspected object(s) through the CT scanner so as to provide object scanning, and to provide for shielding means for protection against radiation.

11. With respect to claim 2, DiBianca discloses one of the detectors in the first plurality of detectors is positioned within the x-ray beam adjacent to one of the detectors in the second plurality of detectors (see Fig. 9).

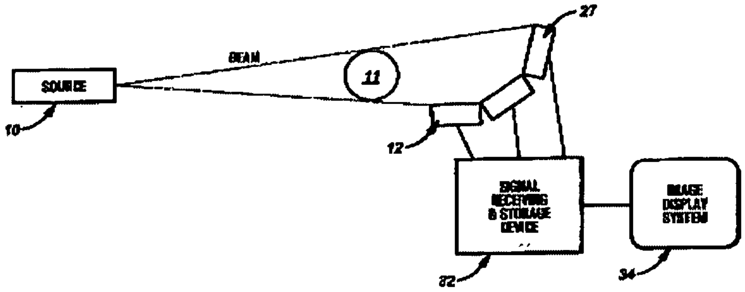

FIG. 9

12. With respect to claim 3, DiBianca discloses a third plurality of detectors on the gantry (see Fig. 9), but does not disclose it to be positioned the second distance from the x-ray source. However, DiBianca discloses (column 4, lines 40-44), "The foregoing disclosure and description of the invention are illustrative and explanatory. Various changes in the size, shape, and materials, as well as in the details of the illustrative construction may be made without departing from the spirit of the invention." It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the third plurality of detectors on the gantry be positioned the second distance from the x-ray source, depending on the size of the object being inspected.

13. With respect to claim 4, DiBianca discloses one of the detectors in the first plurality of detectors is positioned within the x-ray beam adjacent to one of the detectors in the second plurality of detectors; and another one of the detectors in the first plurality of detectors is positioned within the x-ray beam adjacent to one of the detectors in the third plurality of detectors (see Fig. 9 – the middle set is the first plurality of detectors).

14. With respect to claim 8, DiBianca discloses a third plurality of detectors on the gantry positioned a third distance from the x-ray source (see Fig. 9).

15. With respect to claim 9, DiBianca discloses the x-ray beam intersects a portion of a cross section of the tunnel less than the entire cross section of the tunnel; and the first, second, and third pluralities of detectors are positioned on the gantry so that the detectors intersect the entire x-ray beam (see Fig. 9).

16. With respect to claim 10, DiBianca does not disclose the x-ray beam intersects one-half of the cross section of the tunnel. However, Figure 6 shows the entire object (11) being irradiated. If the object to be imaged is large enough to fit at least one-half the tunnel, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a beam sufficiently wide to irradiate one-half the tunnel. One-half could also be interpreted to mean more than one-half.

17. With respect to claim 11, DiBianca discloses at least one computer for receiving data from the detectors (Fig. 9, 32) and reconstructing an image (34) of at least a portion of the object (11).

18. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over DiBianca (USPN 6,335,957 B1) in view of Fenkart et al. (USPN 6,647,091 B2) as applied to claim 1 above, and further in view of Okumura et al. (USPN 6,658,082 B2).

19. With respect to claim 6, DiBianca/Fenkart et al. do not disclose a distance between adjacent detectors in the first plurality of detectors is different than a distance between adjacent detectors in the second plurality of detectors. Okumura et al. disclose a distance between adjacent detectors in the first plurality of detectors is different than a distance between adjacent detectors in the second plurality of detectors (see Fig. 11). It would have been obvious to one of ordinary skill in the art at the time the invention was

made to modify the DiBianca/Fenkart et al. apparatus to have a distance between adjacent detectors in the first plurality of detectors be different than a distance between adjacent detectors in the second plurality of detectors, as taught by Okumura et al., because having smaller detector elements in the first region allows for higher resolution and having larger detector elements in a second region allows for lower resolution; the smaller detectors being closer together than the larger detectors, and thus having different distances between adjacent ones.

20. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over DiBianca (USPN 6,335,957 B1) in view of Fenkart et al. (USPN 6,647,091 B2) as applied to claims 1 and 11 above, and further in view of Ermert et al. (USPN 4,796,183).

21. With respect to claims 12 and 13, DiBianca/Fenkart et al. do not disclose a data link between the detectors on the gantry and the at least one computer not positioned on the gantry, wherein the data link provides a constant stream of detector data from the detectors to the at least one computer. Ermert et al. disclose this (column 3, lines 15+). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a data link in the DiBianca/Fenkart et al. apparatus between the detectors on the gantry and the at least one computer not positioned on the gantry, wherein the data link provides a constant stream of detector data from the detectors to the at least one computer, to provide less cumbersome means for acquiring the detector data and to enable faster image acquisition.

22. Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over DiBianca (USPN 6,335,957 B1) in view of Fenkart et al. (USPN 6,647,091 B2) and Alvarez et al. (USPN 4,029,963).

23. With respect to claims 17 and 18, DiBianca discloses a CT scanner (Fig. 6) for scanning of an object (11) comprising: a gantry (60) rotatable around an object; an x-ray source (10) on the gantry for providing an x-ray beam; a first plurality of detectors (Fig. 9, 27) positioned on the gantry to intersect a first portion of the x-ray beam; and a second plurality of detectors (12) positioned on the gantry to intersect a second portion of the x-ray beam separate from the first portion. DiBianca does not disclose a tunnel and a conveyor for moving the object through the tunnel. Fenkart et al. disclose a tunnel (Fig. 1, 12/14/16) and a conveyor (18) for moving the object through the tunnel. The invention is a nonintrusive inspection apparatus and includes a gantry section (34) for CT imaging. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a tunnel and conveyor in the DiBianca apparatus, to have a means for moving the inspected object(s) through the CT scanner so as to provide object scanning, and to provide for shielding means for protection against radiation.

DiBianca does not disclose the x-ray beam includes at least two energy levels, where the first plurality of detectors are responsive to a first one of the at least two energy levels, and the second plurality of detectors are responsive to a second one of the at least two energy levels. Alvarez et al. disclose the x-ray beam includes at least two energy levels (column 8, lines 27-37), where the first plurality of detectors (40) are responsive to a first one of the at least two energy levels, and the second plurality of detectors (41) are responsive to a second one of the at least two energy levels (Fig. 1-b).

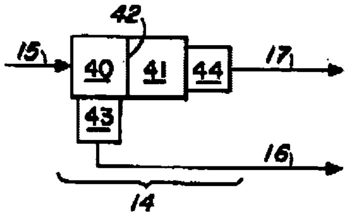

FIG. 1-b

It would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the DiBianca/Fenkart et al. apparatus to use at least two energy levels, where the first plurality of detectors are responsive to a first one of the at least two energy levels, and the second plurality of detectors are responsive to a second one of the at least two energy levels, as taught by Alvarez et al., to enable discrimination of different materials as is known in the art. Each of the detector arrays disclosed by DiBianca in Figure 9 would be made up of an array of detectors as taught by Alvarez et al. Each detector taught by Alvarez et al. includes a first subset of detectors (41) positioned a first distance from the x-ray source; and a second subset of detectors (40) positioned a second distance from the x-ray source, wherein the second distance is less than the first distance.

24. With respect to claims 19 and 20, DiBianca/Fenkart et al./Alvarez et al. do not disclose the second plurality of detectors includes: a third subset of detectors positioned a third distance from the x-ray source; and a fourth subset of detectors positioned a fourth distance from the x-ray source, wherein the fourth distance is less than the third

distance. However, the use of two or more discrete energies is known in the art, and it would have been necessary to one of ordinary skill in the art to use a corresponding number of detector subsets.

25. Claims 21-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cable (USPN 4,599,740) in view of Fenkart et al. (USPN 6,647,091 B2).

26. With respect to claims 21 and 22, Cable discloses a baggage processing system comprising: a plurality of scanners (Fig. 1, 15 & 16) for scanning a bag, each of the scanners including a computer for processing data from the scanner and for reconstructing an image of at least a portion of the bag; at least one operator review station for displaying a reconstructed image; and a network for transferring a reconstructed image from at least one scanner to the at least one operator review station for display (column 6, lines 3+). Cable also discloses the computer in each of the scanners includes means for detecting a potential threat in a bag based upon reconstructed image, and wherein a reconstructed image is transferred to the at least one operator review station upon detection of a potential threat (column 6, lines 3+). Cable discloses all the elements except the scanner is a CT scanner. Cable discloses a radiographic examination system. Fenkart et al. disclose a nonintrusive CT inspection apparatus (Fig. 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use CT scanners in the Cable system, as taught by Fenkart et al., because they would provide for more accurate contraband detection means.

27. With respect to claims 23-26, Cable discloses the baggage processing system is located at an airport security check-point (column 1, lines 55-60). Cable also discloses (column 2, lines 60-68), "Yet another object of the present invention is to provide a system for the examination and verification of the contents of goods traffic containers, which will be particularly useful for customs authorities, port authorities, border posts, security services and similar groups in charge of the supervision of goods movement at critical points, particularly for the verification of the contents of such containers for avoiding the movement of contraband or illegal goods." It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the baggage processing system as taught by Cable/Fenkart et al. at an airline check-in desk, or at an airport curb-side check-in area, or at a location other than an airport to which bags are to be transported, because these are all areas which should be checked for contraband or illegal goods.

28. With respect to claim 27, Cable discloses a baggage check-in system comprising: a first check-in station (Fig. 1, 11) for passenger to check-in for a flight and to check baggage, and a second check-in station (12) for passengers to check-in for a flight and to check baggage. Cable does not disclose a CT scanner positioned between the first check-in station and the second check-in station. Cable discloses each check-in station having a radiographic examination system. Fenkart et al. disclose a nonintrusive CT inspection apparatus (Fig. 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the CT scanner taught by Fenkart et al. in the Cable check-in system, positioned between the first and second

check-in stations, because this would be cheaper than using two examination systems and the CT scanner would be more accurate in contraband detection.

29. With respect to claim 28, Cable discloses a baggage handling system (33) for removing bags from the second side of the first and second check-in stations for transport to an aircraft. Cable does not disclose a tunnel positioned between the first check-in station and the second check-in station; and a conveyor through the tunnel to move bags from a first side of the first and second check-in stations to a second side of the first and second check-in stations. Fenkart et al. disclose a tunnel (Fig. 1, 12/14/16) and a conveyor (18) through the tunnel to move bags from a first side (12) to a second side (16) of the check-in station. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a tunnel in the Cable system, positioned between the first check-in station and the second check-in station, and a conveyor through the tunnel to move bags from a first side of the first and second check-in stations to a second side of the first and second check-in stations, to have a means for moving the inspected bags through the CT scanner, and to provide for shielding means for protection against radiation, as taught by Fenkart et al.

30. With respect to claim 29, Cable discloses a computer (Fig. 5) for detecting a potential threat in a bag prior to moving a bag to the baggage handling system. Cable does not disclose this to be used with a CT scanner, but it would have been obvious to one of ordinary skill in the art at the time the invention was made to do so in the case of using a CT scanner, to be able to visually detect and identify potential threats.

Allowable Subject Matter

31. Claims 5, 7, and 14-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

32. The following is a statement of reasons for the indication of allowable subject matter: Prior art fails to disclose a CT scanner for scanning of an object wherein the x-ray beam intersects an entire cross section of the tunnel, and the first, second, and third pluralities of detectors are positioned on the gantry so that the entire x-ray beam intersects at least one detector, as claimed. Prior art fails to disclose a CT scanner for scanning of an object wherein an angle between beams from the x-ray source to adjacent detectors in the first plurality of detectors is the same as an angle between beams from the x-ray source to adjacent detectors in the second plurality of detectors, as claimed. Prior art fails to disclose a CT scanner for scanning of an object wherein each detector in the first and second plurality of detectors includes a second photodiode layer responsive to x-ray energy at a second energy level higher than the first energy level, positioned behind the first photodiode layer relative to the x-ray source, and having a second x-ray reception area larger than the first x-ray reception area, as claimed.

Conclusion

33. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jurie Yun whose telephone number is 571 272-2497. The examiner can normally be reached on Monday-Friday 8:30-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on 571 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jurie Yun
September 13, 2004

Craig E Church

Craig E. Church
Primary Examiner